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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/088,334

07/15/2002

Andrew E. Vandali

1473-071

2884

22506

7590

03/15/2006

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EXAMINER

STORM, DONALD L

ART UNIT

PAPER NUMBER

2654

DATE MAILED: 03/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/088,334	Applicant(s) VANDALI ET AL.	
	Examiner Donald L. Storm	Art Unit 2654	

**– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on March 14, 2002 through July 15, 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 4 is/are rejected.
- 7) ☒ Claim(s) 2,3 and 5-10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Allowable Subject Matter***

1. Claims 2, 3, and 5-10 would be allowable over the prior art of record if rewritten to include all of the limitations of the base claim and any intervening claims. The whole structure and interaction expressed by the combination of all limitations is not made obvious compared to the prior art of record for the whole invention of those dependent claims, particularly with determination of a rate of change profile as a basis for sizing an increase that is applied to short-duration amplitude transitions. Certain assumptions that make the limitations clear have been considered for the claims, as described next or elsewhere in this Office action. The claims should also be rewritten to overcome any objections or rejections under 35 U.S.C. 112(2), especially as appearing in this Office action.

### ***Response to Amendment***

2. The PRELIMINARY AMENDMENT, filed March 14, 2002, is present in the application file, and it has been considered by the Examiner.

### ***Oath/Declaration***

3. The replacement declaration submitted by the Applicant was received on July 15, 2002, and this declaration is substantively acceptable to the Examiner.

### ***Drawings***

4. The drawings are objected to under 37 CFR 1.84 (u). The figure number "A1" should be Arabic only to comply with 37 CFR 1.84(u), which states in part:

(1) The different views must be numbered in consecutive Arabic numerals, starting with 1, independent of the numbering of the sheets and, if possible, in the order in

which they appear on the drawing sheet(s). . . . View numbers must be preceded by the abbreviation "FIG." . . . (2) Numbers and letters identifying the views must be simple and clear and must not be used in association with brackets, circles, or inverted commas. The view numbers must be larger than the numbers used for reference characters.

For correction of drawings, see MPEP § 608.02(p). Note that changing the numbering of figures may require amending throughout specification to the changed figure numbers, for example, page 9, line 6.

### ***Specification***

5. The specification is objected to under 37 CFR 1.74 because Fig. A1 is not described with the brief descriptions in the specification. The Applicant should add a brief description of each part of the figure. See 37 CFR 1.74 and MPEP § 608.01(f). Appropriate correction is required. Note that a figure number "A1" does not comply with 37 CFR 1.84 (u).

### ***Claim Informalities***

6. Claim 1, and by dependency claims 2-10, are objected to under 37 CFR 1.75(a) because the meaning of the phrase "the relative amplitude" (line beginning *duration amplitude*) needs clarification. Because no relative amplitude was previously recited, it may be unclear as to what element this phrase refers. Invoking inherent antecedent basis to the following "transitions" is ineffective because these are plural transitions, but only one relative amplitude is recited here. To further timely prosecution and evaluate prior art, the Examiner has interpreted this phase as --relative amplitudes--.

7. Claim 1, and by dependency claims 2-10, are objected to under 37 CFR 1.75(a) because the meaning of the phrase “said transitions in said sound signal” (line beginning *said*) needs clarification. Because the transitions were not previously said as being in the sound signal, it may be unclear as to what element this phrase refers. (They were said as being in envelopes.) To further timely prosecution and evaluate prior art, the Examiner has interpreted this phrase as --transitions in said sound signal--.

8. Claim 2 is objected to under 37 CFR 1.75(a) because the meaning of the phrase “the predetermined time provided” (line 1) needs clarification. Because the time was not previously recited as being provided, it may be unclear as to what element this phrase refers. To further timely prosecution and evaluate prior art, the Examiner has interpreted this phrase as --the predetermined time period--.

9. Claim 3 is objected to under 37 CFR 1.75(a) because the meaning of the phrase “the detections of short-duration transitions in the rate of change profile” (lines 1-2) needs clarification. Because short-duration transitions were not previously recited as being in the rate of change profile, it may be unclear as to what element this phrase refers. To further timely prosecution and evaluate prior art, the Examiner has interpreted this phrase as --detections of short-duration transitions in the rate of change profile--.

10. Claim 3 is objected to under 37 CFR 1.75(a) because the meaning of the phrase “the short-duration transition” (lines 3-4) needs clarification. Is it the short duration transition in the rate of change profile, or one of the short-duration amplitude transitions? To further timely prosecution and evaluate prior art, the Examiner has interpreted this phrase as --a short duration transition--.

11. Claim 6 is objected to under 37 CFR 1.75(a) because the meaning of the phrase “the slow-varying envelope signal” (lines 2-3) needs clarification. Because no slow-varying envelope signal was previously recited, it may be unclear as to what element this phrase refers. If it is inherent in the “appropriate equivalence”, the claim language should be altered to make the inherency clearer, perhaps using the term “inherent”. To further timely prosecution and evaluate prior art, the Examiner has interpreted this phrase as --a slow-varying envelope signal--.

12. Claim 6 is objected to under 37 CFR 1.75(a) because the meaning of the phrase “the fine profile structure” (final line) needs clarification. Because no fine profile structure was previously recited, it may be unclear as to what element this phrase refers. If it is inherent in one of the envelopes, the claim language should be altered to make the inherency clearer, perhaps using the term “inherent”. To further timely prosecution and evaluate prior art, the Examiner has interpreted this phrase as --a fine profile structure--.

13. Claim 7 is objected to under 37 CFR 1.75(a) because the meaning of the phrase “the slow-varying envelope signal” (line 1) needs clarification. Because no slow-varying envelope signal was previously recited, it may be unclear as to what element this phrase refers. To further timely prosecution and evaluate prior art, the Examiner has interpreted this phrase as --a slow-varying envelope signal--.

14. Claim 9 is objected to under 37 CFR 1.75(a) because the meaning of the phrase “the additional factor gain” (line 1) needs clarification. Because no additional factor gain was previously recited, it may be unclear as to what element this phrase refers. To further timely prosecution and evaluate prior art, the Examiner has interpreted this phrase as --the gain factor--.

15. Claim 9 is objected to under 37 CFR 1.75(a) because the meaning of the phrase “the additional gain factor  $G_n$  applied to the sound signal” (lines 1-2) needs clarification. Because no additional gain factor, nor the gain factor of claim 5, was previously recited as applied to the sound signal, it may be unclear as to what element this phrase refers. To further timely prosecution and evaluate prior art, the Examiner has interpreted this phrase as --the gain factor  $G_n$ --.

16. The Examiner notes, without objection, that the following phrases assume inherent antecedent reference by their recitation in place: (claim 1) “the amplitude”, “the size”; (claim 2) “the faster/greater”, “the rate of change”; “the greater”; (claim 4) “the output”; (claim 5) “the filter channel number”, “the gain factor each channel”; (claim 6) “the envelope signal”, “each filter channel”; (claim 7) “the 2nd order derivative”, “each filter channel”; (claim 8) “each filter channel” (two occurrences), “the current, past and future”. The Applicant may wish to consider if the phrases accurately recite the claimed subject matter that the Applicant wants, whether or not the claims might be amended.

Also, is a word or phrase missing from “the gain factor each channel” (claim 5)?

17. The form of the claims does not follow Office practice. While there is no set statutory form for claims, the present Office practice is to insist that each claim must be the object of a sentence starting with “I (or we) claim”, “The invention claimed is”, or the equivalent. The Applicant is encouraged to insert a desired introduction before claim 1. If, at the time of allowance, appropriate terminology is not present, it is inserted by the technical staff. See MPEP § 608.01(m).

***Claim Rejections - 35 USC § 102***

18. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Yoshizumi**

19. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Yoshizumi [US Patent 5,583,969].

20. Regarding claim 1, Yoshizumi [at title] describes a sound processing device by describing the content and functionality of the recited limitations recognizable as a whole to one versed in the art as the following terminology:

means for estimating the amplitude envelope of a sound signal in a plurality of spaced frequency channels and means for analyzing the estimated amplitude over time so as to detect short-duration amplitude transitions in said envelopes [see especially column 3, lines 30-36, for circuits for estimating the amplitude of a speech signal in a ratio of its short-period average higher-frequency components to its short-period average lower frequency components and identify plosives; and at column 1, line 60, as short burst, such as plosives];

means for increasing relative amplitudes of said transitions [see especially column 3, lines 37-42, for circuits for emphasizing plosives based on data acquired by the calculation];

including means for determining a rate of change profile over a predetermined time period of short duration transitions [see especially column 3, lines 1-14, for the differentiating circuit for differentiating the ratio with regard to time and determining a time period of exceeding a threshold];



and means for determining, from the rate of change profile, the size of an increase in relative amplitude applied to transitions in said sound signal to assist in perception of low-intensity, short-duration speech features in said signal [see especially column 3, lines 30-55, of properly controlling, based on the data obtained by the calculation over the time period, the amplification gain which can amplify plosives and thus improve the intelligibility of the speech; and at column 1, line 60, as short burst and small amplitude, such as plosives].

### ***Claim Rejections - 35 USC § 103***

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

#### **Yoshizumi and The Audio Dictionary**

22. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshizumi [US Patent 5,583,969] in view of Glenn D. White, "The Audio Dictionary," University of Washington Press, Seattle, WA (1987), pp. 202-203.

23. Regarding claim 4, Yoshizumi describes the included claim elements by dependency as indicated elsewhere in this Office action. Yoshizumi also describes:

a pre-amplifier [at column 1, line 16, as an amplifier for amplifying];

a bank of N parallel filters [at column 2, lines 25-31, as a first band pass filter and second bandpass filter which allow components of a signal to pass through];

and means for applying a transient emphasis algorithm to the output of the filters [see especially column 3, lines 37-42, for circuits for emphasizing plosives based on data acquired by the calculation and at column 1, line 60, as short burst, such as plosives].

Although Yoshizumi [see Fig. 1 and Fig. 9] recognizes speech input to processing devices, through a pre-amplifier, as conventional, Yoshizumi does not indicate a means for inputting speech from a speaker into an apparatus. In particular, Yoshizumi does not describe a microphone.

The Audio Dictionary [at pages 202-203] also describes speech input through a preamplifier, and The Audio Dictionary describes:

a microphone [at page 202];

a preamplifier [at page 203].

As indicated, The Audio Dictionary shows that a microphone was known to artisans at the time of invention. The Audio Dictionary also points out that the microphone has the advantage of delivering a signal when actuated by sound. To the extent that Yoshizumi does not necessarily include a microphone, it would have been obvious to one of ordinary skill in the art of speech input at the time of invention to include the concepts described by The Audio Dictionary, at least including a microphone as means to input a speaker's speech through Yoshizumi's preamplifier and processor because that would provide the advantage of delivering a signal that Yoshizumi needs as speech input to provide the sounds of a speaker's plosives in the speech sounds for processing.

**Conclusion**

24. The following references here made of record are considered pertinent to applicant's disclosure:

Doddington [US Patent 4,696,039] normalizes energy of a frame to increase throughput of intelligible speech based on silence, speech, and voiced speech.

Suzuki [US Patent 5,278,910 and US Patent 5,408,581] multiplies speech levels by coefficients before and after a change in level to reduce changes in level so that masking low-level portions of speech by loud speech is prevented.

Kingsbury et al. [US Patent 6,308,155] emphasizes slow changes in critical band spectra of speech to enhance speech-dependent characteristics and lessen speaker characteristics.

Kluender et al. [US Patent 6,732,073] selectively multiplies time-dependent gain to frequency bands of speech to increase perceptual distinctness of consonants' onset, offset, etc.

25. Any response to this action should be mailed to:

**Mail Stop Amendment**

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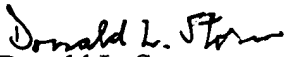
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26. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald L. Storm, of Art Unit 2654, whose telephone number is (571) 272-7614. The examiner can normally be reached on weekdays between 7:00 AM and 3:30 PM Eastern Time. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Inquiries regarding the status of submissions relating to an application or questions on the Private PAIR system should be directed to the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 571-272-4100 between the hours of 6 a.m. and midnight Monday through Friday EST, or by e-mail at: [ebc@uspto.gov](mailto:ebc@uspto.gov). For general information about the PAIR system, see <http://pair-direct.uspto.gov>.

March 10, 2006

  
Donald L. Storm  
Examiner, Art Unit 2654